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Claims

[c1] What is claimed is:

A compact apparatus for forming strips of material suitable for use in packing, comprising:

a shredding mechanism device including a means for securing blanks operative to form material strips therefrom;

a conveyor having a perforated belt movable between an input position at which material strips from said shredder device are placed atop said perforated belt, and a discharge position where the material strips are discharged from said perforated belt; and

means for producing suction on the strips, comprising a suction housing located at or beyond said discharge position, whereby contaminants on the material strips are removed.

[c2] The apparatus of claim 1, further comprising a slitter for slitting corrugated cardboard into blanks of predetermined size before placement on the means for securing blanks.

[c3] The apparatus of claim 2, wherein the slitter is adapted for creating blanks of approximately four inches in

width.

[c4] The apparatus of claim 2, wherein slitter the adapted for automatically feeding the blanks into an inlet of the shredding mechanism.

[c5] The apparatus of claim 4, wherein the slitter is adapted for the removal of clips, staples and tape and other closure devices from cardboard before slitting.

[c6] The apparatus of claim 1, wherein the shredding mechanism includes at least one blade, whereby strips are formed from blanks by a scissor cutting motion.

[c7] The apparatus of claim 6, wherein the blade is located on a roller.

[c8] The apparatus of claim 1, wherein the means for securing comprises a plurality of parallel rigid guides for the blanks.

[c9] The apparatus of claim 8, wherein the guides further comprise at least one generally horizontal slot complementary to a corresponding side of the blank.

[c10] The apparatus of claim 8, further comprising a knurled roller system for impinging upon the top surface of the blank.

[c11] The apparatus of claim 8, further comprising a plurality of means for producing tension on a blank.

[c12] The apparatus of claim 11, wherein the means for producing tension comprises at least one front end leaf spring.

[c13] The apparatus of claim 12, wherein each leaf spring further comprises at least one suppression pad.

[c14] The apparatus of claim 12, wherein the tension from the spring is adjustable.

[c15] The apparatus of claim 8, wherein the guides are adjustable so that the width of the blanks entering the apparatus is adjustable.

[c16] The apparatus of claim 8, wherein the guides further comprising a crossover member.

[c17] The apparatus of claim 1, wherein the shredding mechanism further comprises a centering construct for centering strips on an input end of the conveyor.

[c18] The apparatus of claim 17, wherein the centering construct is attached to a drop chute at an output end of the shredding mechanism.

[c19] The apparatus of claim 1, wherein said conveyor passes

through said suction housing; and suction occurs below the strips.

[c20] The apparatus of claim 19, wherein the suction housing further comprises means for providing positive air flow above the strips.

[c21] The apparatus of claim 20, wherein the positive airflow and the suction are optimized to remove contaminants from the strips.

[c22] The apparatus of claim 21, wherein the suction housing interior further comprises a means for creating a vortex.

[c23] The apparatus of claim 22, wherein the means for creating a vortex comprises a vortex box.

[c24] The apparatus of claim 23, wherein the vortex box comprises generally parallel interior elements and generally rounded corners.

[c25] The apparatus of claim 24, wherein the vortex box further comprises a removable cover plate.

[c26] The apparatus of claim 23, wherein the vortex box further comprises one or more fans, located at the upper portion of the suction housing whereby positive air pressure from the fans impinges the top of the strips.

[c27] The apparatus of claim 23, further comprising a shredding mechanism cover at least partially enclosing an output and of the shredding mechanism.

[c28] The apparatus of claim 27, further comprising a means for producing suction force within the shredding mechanism.

[c29] The apparatus of claim 28, where in the means for producing suction force within the shredding mechanism comprises conduct connecting the means for producing suction on the strips.

[c30] The apparatus of claim 1, wherein the conveyor comprises one or more cleats optimized for moving strips from the output end of the shredding device.

[c31] The apparatus of claim 30, wherein the conveyor comprises a fiberglass, Kevlar coated webbing.

[c32] The apparatus of claim 1, further comprising an angled perforated sifter plate located at the discharge end of the conveyor.

[c33] The apparatus of claim 32, wherein the sifter plate is in mechanical communication with a means for vibrating, whereby the sifter plate is vibrated to remove contaminants.

[c34] The apparatus of claim 32 wherein the sifter plate includes an upper end, a lower end and a generally smooth drop zone located at the upper end.

[c35] The apparatus of claim 34 wherein the sifter plate further comprises a generally smooth drop off zone located at the lower end.

[c36] The apparatus of claim 1 further including means for spraying a liquid having microbicidal, sanitizing, insect repellant, disinfectant and deodorizing properties onto the material strips.

[c37] The apparatus of claim 36, wherein the means for spraying further includes a means for dispensing a purging liquid.

[c38] The apparatus of claim 29, wherein the means for spraying further comprises an electrical switching device for activating the means for spraying.

[c39] The apparatus of claim 38, wherein the electrical switching device further comprises a foot pedal.

[c40] The apparatus of claim 37, wherein the means for spraying and the means for dispensing a purging liquid comprise a ball valve.

[c41] The apparatus of claim 1, further comprising a mechanical induced air pressure within a tank of purging liquid activated by an electrical switching device.

[c42] The apparatus of claim 1, wherein the apparatus further comprises wheels for transportation.

[c43] The apparatus of claim 2, wherein the slitter further comprises adjustable rotating cutting disks for forming blanks.

[c44] The apparatus of claim 36, wherein the means for spraying further comprises a frame for holding one or more tanks of liquid.

[c45] A suction housing for cleaning objects on a conveyor, comprising:
a top portion;
a bottom portion having: elongated elements, pressure and a rounded periphery;
means for producing positive air pressure on the top portion of a conveyor;
and a means for producing suction below a conveyor, whereby a vortex is created within the suction housing.

[c46] The suction housing of claim 45, wherein to means for producing negative air pressure is located so that the suction is below and generally orthogonal to the con-

veyor.

[c47] The suction housing of claim 45, wherein the conveyor is perforated.

[c48] A compact apparatus for forming strips of material suitable for use on packing, comprising:
means for shredding blanks, having means for securing blanks operative to form material strips therefrom;
belt means for conveying strips from said means for shredding to a discharge location;
housing means for providing suction on a portion of said belt means; and
means for sifting the strips at a location beyond said discharge point.

[c49]